

PI-80 Pinball Board Setup & Menus

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IMPORTANT PRELIMINARY INSTRUCTIONS PRIOR TO INSTALLING THE BOARD:



The pinball game must be turned off and unplugged from outlet before removing/installing any board
 The electronic boards must be handled by their edges to reduce the risk of damage through static electricity
 The AC cord must be in good shape and imperatively plugged into a grounded outlet before turning the pinball game on
 All displays and **A6/A7** (sound) boards must be in perfect working condition, all coils and their respective diodes must have been checked good
 All fuses must have been checked and strictly comply to game's prescriptions (rating -in amperes- and blowing speed) in the original game's manual
 Pins of all connectors around boards **A1** (CPU) **A2** (power supply) **A3** (driver) and **A6/A7** (sound) must be clean and corrosion-free



INSTALLING THE BOARD IN A GAME IN UNKNOWN CONDITION WILL VOID THE GUARANTEE

This color shows all changes in the manual's next pages since last version

This color shows all settings pertaining to Haunted House MULTIBALL game

SOFTWARE VERSION

March 2018

WHAT'S NEW?

« EIDorado City of Gold » Newly added game
 Stuck pop bumper error Errors page
 « Spirit » New game setting

GAMES LIST

With game number and release date

Bold : game ready. **Greyed out** : under programming.

| System 80 | System 80A |
|--------------------------------|--|
| Spiderman #653, 1/80 | Devil's Dare #670, 8/82 |
| Panthera #652, 5/80 | Caveman #810PV, 9/82 |
| Circus #654, 6/80 | Rocky #672, 9/82 |
| Counterforce #656, 8/80 | Spirit #673, 11/82 |
| Star Race #657, 10/80 | Punk #674, 12/82 |
| James Bond #658, 10/80 | Striker #675, 1/83 |
| Time Line #659, 11/80 | Krull, #676, 2/83 |
| Force II #661, 1/81 | Q*bert's Quest #677, 3/83 |
| Pink Panther #664, 3/81 | Super Orbit #680, 5/83 |
| Mars God of War #666, 4/81 | Royal Flush Deluxe #681, 6/83 |
| Volcano #667, 7/81 | Gom Nuts #682, 1982 |
| Black Hole #668, 10/81 | Amazon Hunt #684, 9/83 |
| Eclipse #671, 10/81 | Rack 'Em Up #685, 11/83 |
| Haunted House #669, 2/82 | Ready Aim Fire #686, 11/83 |
| Haunted House MULTIBALL | Jacks to Open #687, 5/84 |
| | Alien Star #689, 8/84 |
| | The Games #691, 8/84 |
| | Touchdown #688, 2/85 |
| | EI Dorado City of Gold #692, 3/85 |
| | Ice Fever #695, 5/85 |

PI-80 exclusive -->>

DERIVATIVE KIT GAMES

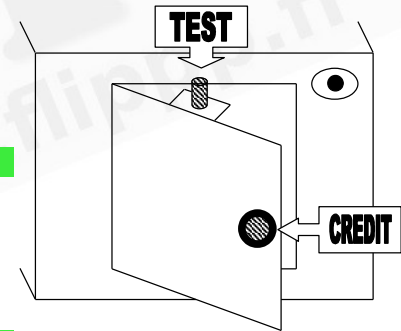
| Game | Maker | Derivative Gottlieb Game |
|-----------|------------------|--|
| Grand 8 | Christian Tabart | Panthera (System 80) |
| Ice Mania | IDI (Italie) | Ice Fever (System 80A) en version 6 digits |
| Mythology | Unknown | The Games (System 80A) |

Directions for use of the menus

Key Feature

- TEST**
- Enter main menu
 - Proceeds to next entry

- CREDIT**
- Enters displayed menu
 - Increases displayed value
 - Selects the next displayed value



Change selected game upon power-up

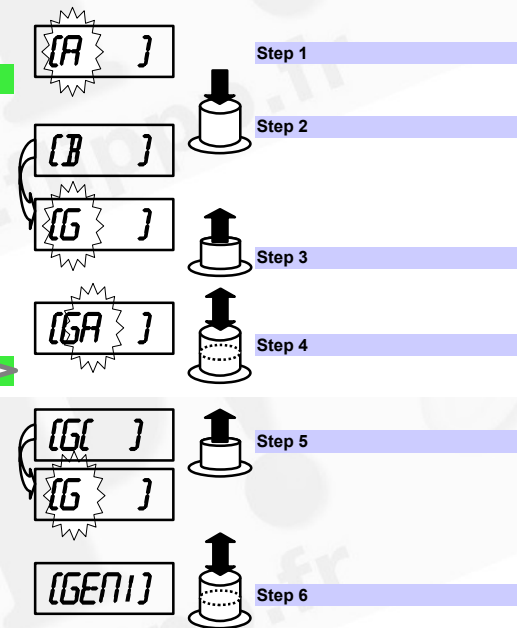
- Step**
- 1 The game displays « PI80X4 » then the date and the name + number of the currently selected game
 - 2 Press TEST: the game number flashes
 - 3 Press TEST once or several times to scroll thru the implemented games until the desired one is displayed
 - 4 Press CREDIT to select the displayed game

Navigate thru the main menu

- Step**
- 1 Press TEST to enter the main menu
 - 2 Press TEST once or several times to scroll thru the sub-menus until the desired one is displayed
 - 3 Press CREDIT to enter the displayed sub-menu
 - If the displayed sub-menu is "EXIT MENU", the software exits the main menu and returns to "game over" mode

Navigate thru the sub-menus

- Step**
- 1 Press TEST several times to scroll thru the available selections until the desired function or value is displayed, or hold TEST pressed to make them scroll continuously
 - 2 Press CREDIT:
 - either to run the displayed function
 - or to modify the displayed value, or hold CREDIT pressed to make the possible values scroll continuously
 - 3 Press TEST once or several times to change the displayed value, or hold TEST pressed to change the value continuously
 - Some functions, that take a certain time to execute, have their name flashing during execution, until the "DONE" message is briefly displayed in the end
 - 4 Press CREDIT to exit from sub-menu, or select the displayed value (depends on sub-menu)
 - The software exits the sub-menu and returns to the main menu



Enter name in high scores table (when enabled) - Example given with « GENI » name:

- Step**
- 1 The currently edited letter flashes at 1st position
 - 2 Press and hold CREDIT: the currently displayed letter scrolls to the next letter in the A..Z 0..9 list
 - 3 the scrolling stops onto the currently displayed letter (which flashes again) when CREDIT is released
 - 4 Press CREDIT briefly:
 - the current letter is stored, and the cursor moves to the next character which flashes in turn, and so forth for all 4 positions
 - 5 If CREDIT is held then released when '[' is displayed, this erases the current letter and brings back to the previous one in list (unless already set on the 1st letter)
 - 6 Press CREDIT briefly after the 4th position: the final name is stored in the table
- Timeout If no action is performed by the player for 5 seconds, the displayed name is automatically stored

Main menu

| Entry # (CREDIT) | Menu (PLAYER3 / PLAYER 4) | Description | | |
|---|------------------------------|---|--|---|
| INDIVIDUAL SETTINGS MENUS | | | | |
| A1 | GAME AUDITS | All the parameters backed up game after game | | |
| | Parameter | Description | Press CREDIT | |
| | LEFT COINS | Number of coins inserted in the left coin slot | Reset value | |
| | RIGHT COINS | Number of coins inserted in the right coin slot | | |
| | CENTER COINS | Number of coins inserted in the center coin slot (if present) | | |
| | TOTAL PLAYS | Total number of plays | | |
| | TOTAL REPLAYS | Total number of replays earned: special, beating either score to beat, match, beating high scores | | |
| | TOTAL EXBALLS | Total number of extraballs earned | | |
| | TOTAL TILTS | Total number of tilt triggered | | |
| | TOTAL SLAMS | Total number of slam triggered | | |
| | BEATEN HISCORE | Total number of times the highest score (record) has been beaten | | |
| | TOTAL TIME | Total play time, in Days Hours Minutes and Seconds | | |
| S1 | COMMON SETTING | General settings common to all games | | |
| | | Refer to « COMMON SETTINGS » menu | | |
| S2 | GAME SETTING | Settings specific to selected game, see separate « SPECIFIC » tag | | |
| | | Refer to « SPECIFIC SETTINGS » menu | | |
| S3 | SOUNDS SETTING | Game sound settings | | |
| | Display | Description | Values | Feature |
| | | Selects the type of played sounds, which depends on the game and its sound board: | | |
| | | If additional PI-FX/80 sound board installed : for games Panthera, Star Race, James Bond | SCORING CONTINUOUS TONE | Does not play some background sounds Plays some background sounds |
| | SOUND MODE | If additional PI-FX/80 sound board installed : for games Spiderman, Circus, Counterforce For games released in both versions : Volcano, Black Hole, Devil's Dare | SOUND CLASSIC SPEECH DISABLE | Modifies some sounds Modifies some sounds Uses the 'small' classic sound board (« export » game) Uses the 'large' speech-capable sound board (« domestic » game) |
| | ATTRACT MODE | If additional PI-FX/80 sound board installed : enables or disabled the attract mode | 12 MIN 6 MIN SINUS | Attract tune is disabled Attract tune is played every 12 minutes Attract tune is played every 6 minutes |
| | SOUND WAVE | If additional PI-FX/80 sound board installed : slightly changes the playback rendering of certain sounds (depends on sound and game) | SAW TOOTH | Sinus sound wave (like the original sound board) Sawtooth sound wave (slightly higher pitched) |
| | TREMOLO EFFECT | If additional PI-FX/80 sound board installed : modifie légèrement l'enveloppe sonore de certaines mélodies (depends on sound and game) | DISABLE ENABLE | Variable volume envelope (like the original sound board) Flat volume envelope (stronger but flat sound) |
| S4 | SCORES SETTING | Settings of 3 scores to beat and highest game to date, values can be set independantly of each other | | |
| | Scores | Description | Values | Press TEST |
| | BEAT 1 | First score to beat | 10,000 to 9,999,990 points (System80) or 99,999,990 points (System80A) 0 = disabled | Moves to next position (from 10M to 10K) or makes the whole score flash |
| | BEAT 2 | Second score to beat | 10,000 to 9,999,990 points (System80) or 99,999,990 points (System80A) 0 = disabled | |
| | BEAT 3 | Third score to beat | 10,000 to 9,999,990 points (System80) or 99,999,990 points (System80A) 0 = disabled | |
| | HIGHEST | Highest game to date (any change also erases any name associated to it) | 10,000 to 9,999,990 points (System80) or 99,999,990 points (System80A) 0 = 1" score made will be stored | |
| S5 | COINS SETTING | Settings of 3 coins slots | | |
| | Coin Slot | Location | Values | Press TEST |
| | LEFT | Left coin slot | X=1..9 coins give Y=1..9 plays | Switches between X and Y values |
| | RIGHT | Right coin slot | X=1..9 coins give Y=1..9 plays | |
| | CENTER | Center coin slot (no effect on games that do not have it) | X=1..9 coins give Y=1..9 plays | Increases the actual value (X or Y) |
| PRESET MENUS | | | | |
| To execute the selected preset/clear entry command, press CREDIT once. « Sure ? » is then displayed: press CREDIT again to confirm and hold it pressed until « DONE » is displayed. | | | | |
| P1 | PRESET SETTINGS | Preset of general settings = set of default values | | Press CREDIT |
| | | Refer to « General settings » menus above: each parameter's default value is printed in white over black background | | Execute & hold to confirm |
| P2 | PRESET SCORES | Preset of 3 scores to beat | | Press CREDIT |
| | Scores | Description | Values | Press CREDIT |
| | BEAT 1 | First score to beat | 200,000 | Execute & hold to confirm |
| | BEAT 2 | Second score to beat | 750,000 | |
| | BEAT 3 | Third score to beat | 1,500,000 | |
| P3 | CLEAR AUDITS | Reset all audits (GAME AUDITS menu) | | Press CREDIT |
| | | | | Execute & hold to confirm |
| P4 | CLEAR HISCORE | Reset high scores table | | Press CREDIT |
| | | All hiscore values are set to 0 and their associated names (if any) are erased | | Execute & hold to confirm |
| TEST MENUS | | | | |
| T1 | COILS TEST | Tests all coils specific to the selected game | Press TEST | Press CREDIT |
| | | Each coil can be tested individually | Next coil in list | Engerizes the displayed coil |
| T2 | COILS G-TEST | Tests the 4 « generic » coils that are common to all games | Press TEST | Press CREDIT |
| | | Game over relay coil (Q), Tilt relay coil (T), Coin lockout coil, Kicker coil (SOL8), Coin counters (SOL3, SOL4, SOL7) | Next coil in list | Engerizes the displayed coil |
| T3 | DISPLAYS TEST | Tests all game displays | Press TEST | Press CREDIT |
| | | Displays numbers from « 0 » to « F » in a cyclic way over 4, 6 or 7 digits depending on display type and series (80 ou 80A) | Flash all displays | End of test |
| T4 | SOUNDS TEST | Tests all 5 sound signals (S1/2/4/8/16) that drive the sound board | | Press CREDIT |
| | Display | Sound test | Press TEST | Press CREDIT |
| | 01..0F | Enables the hexadecimal combination of S8/S4/S2/S1 signals to the sound board | Next sound in list | Plays the selected sound number |
| | 11..1F | Enables the hexadecimal combination of S16/S8/S4/S2/S1 signals to the sound board for sound/speech boards only (depends on game) | | |
| | DEMO PIFX | If additional PI-FX/80 sound board installed : plays all game sounds one after another (demonstration mode) | | |
| T5 | SWITCH TEST | Tests all switches on the playfield and on the front coins door | Press TEST | |
| | | The last 4 pressed switches are displayed. A permanently held contact is shown with an « M » for Maintained. Four switches can be displayed at the same time. | Displays « 07 » then quits the switches test menu | |
| T6 | LAMPS TEST | Tests all playfield lamps (and also in the front head, for some games) | Press TEST | Press CREDIT |
| | | Each of the lamps L3 to L51 are successively turned on for 100ms. | During scrolling: quits When scrolling is frozen: | During scrolling: freezes scrolling When scrolling is frozen: flashes the lamp output 3 times |
| | | | - Press briefly to proceed to next lamp in range - Press and hold to quit | |
| E | -EXIT- MENU- | Exit from main menu and return to « game over » mode | | |

Ver. March 2018

| Entry # (CREDIT) | Menu (PLAYER3 / PLAYER 4) | Description | | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|---------------------|------------------------------|--|-----|-----------------------------|---------------------|---|
| N0 | COMMON SETTING | General settings common to all games | | | | |
| | Réglages | Description | | | | |
| 0 | BALLS P GAME | Number of balls per game | | 17 | 3 | 3 balls per play |
| | | | | | 5 | 5 balls per play |
| 1 | MAX PLAYS | Maximum number of credits allowed | | 15 | 8 PLAY | Max. 8 plays |
| | | | | | 15 PLAY | Max. 15 plays |
| | | | | | 25 PLAY | Max. 25 plays |
| | | Enable free play mode | new | | FREE | Unlimited plays; free play, the credits display shows 99 |
| 2 | DISPLA CREDIT | Shows the number of remaining plays in « credit » display | | 28 | DISABLE | Credit display remains off |
| | | | | | ENABLE | Number of remaining credits |
| 3 | COIN TUNE | Plays a tune (or a sound) upon each newly inserted coin | | 27 | DISABLE | No sound |
| | | | | | ENABLE | Sound or tune |
| 4 | REPLAY TUNE | Plays a tune (or a sound) upon each newly started game when pressing the red credit button | | 26 | DISABLE | No sound |
| | | | | | ENABLE | Sound or tune |
| 5 | MAX SPECIAL | Awarded replay limit (by scoring points or playfield special) per game in play | | 19 | 1 | Only 1 awarded play, any additionally awarded play is ignored |
| | | | | | UNLIM | No limit on awarded plays |
| 6 | GAME SPECIAL | Award given to player when playfield special is scored | | 22 | NOTHING | No award |
| | | | | | NORMAL | 1 free play |
| | | | | | EXBALL | 1 extraball |
| | | | new | | 50 K | 50,000 points |
| | | | new | | 100 K | 100,000 points |
| | | | new | | 250 K | 250,000 points |
| | | | new | | 500 K | 500,000 points |
| 7 | REPLAY AWARD | Award given to player when beating either of the 3 scores to beat | | new | NOTHING | No award |
| | | | | | NORMAL | 1 free play |
| | | | | | EXBALL | 1 extraball |
| 8 | TILT MODE | Tilt effect upon game in play | | 29 | BALL | Current ball and bonus in play are lost for current player only |
| | | | | | GAME | The entire game in play is lost |
| 9 | BONUS CNTDOWN | Way to count bonus down (depends on game) | | new | NORMAL | Normal count down |
| | | | | | CUMULAT | Count down is cumulated per multiplier (in 1 pass) |
| 10 | HIT FLASH | Briefly flashes lamps coupled to a target, a rollover.. (visual effect) | | new | DISABLE | No effect |
| | | | | | ENABLE | Brief flash |
| 11 | FLASH EXBALL | Flashes extraball playfield lamp(s), instead of turning them on steadily (visual effect) | | new | DISABLE | No effect |
| | | | | | ENABLE | Flash lamp |
| 12 | FLASH SPECIAL | Flashes special playfield lamp(s), instead of turning them on steadily (visual effect) | | new | DISABLE | No effect |
| | | | | | ENABLE | Flash lamp |
| 13 | ANIM MULTIPL | Animates bonus multiplier lamps upon value change (visual effect, depends on game) | | new | DISABLE | No effect |
| | | | | | ENABLE | Alternately flash lamps |
| 14 | TILT LEVEL | Tilt level | | new | UNLIM | Tilt is disabled, game can be shaken at will |
| | | | | | 1 | 1 hit triggers tilt (normal) |
| | | | | | 2 | 2 hits trigger tilt |
| | | | | | 3 | 3 hits trigger tilt |
| 15 | EXBALL LEVEL | Number of extraballs that can be cumulated during the game in play, or award for extraball | | new | DISABLE | No extraball |
| | | | | | 1 | 1 extraball (normal) |
| | | | | | 2 | 2 extraballs |
| | | | | | UNLIM | No limit, the player can earn as many extraballs as s/he can |
| | | | | | 50 K | 50,000 points |
| | | | | | 100 K | 100,000 points |
| | | | | | 250 K | 250,000 points |
| | | | | | 500 K | 500,000 points |
| 16 | ANIMAT GAME | Additional visual animations during game in play: display, lamps.. | | new | DISABLE | Disabled |
| | | | | | ENABLE | Enabled |
| 17 | PLAYER LEVEL | Storage of certain game parameters carried over from ball to ball for each player, and other features (depends on game) Refer to « PLAYER LEVEL » menu | | new | EASY | Easier than normal level (more backed-up parameters) |
| | | | | | NORMAL | Normal level (as on original CPU) |
| | | | | | HARD | More difficult than normal level (less backed-up parameters) |
| | | | | | HARDEST | No storage, all features must be re-scored with every new ball |
| 18 | MAX BONUS | Maximum bonus value on games with a bonus lamps ramp on the playfield (depends on game) | | new | NORMAL | 19,000 or 20,000 points |
| | | | | | 39 | 39,000 points (if 20,000 bonus lamp exists) |
| 19 | 1-MILL AWARD | Extra award each time million points is reached (System80 series only) | | new | DISABLE | No award |
| | | | | | ENABLE | Award depends on setting 7 |
| 20 | CHANCE BALL | Chance ball: the ball is given back to the player if s/he played for less time than set, even if some points were made | | new | NONE | Disabled |
| | | | | | 5 SEC | 5 seconds |
| | | | | | 10 SEC | 10 seconds |
| | | | | | 15 SEC | 15 seconds |
| 21 | HISCOR TABLE | Management and display of top high score(s) | | new | NONE | No high score remembered nor displayed |
| | | | | | TOP 1 | 1 highest game to date (as on original CPU) |
| | | | | | TOP 1+N | 1 highest game to date along with player's name |
| | | | | | TOP 5+N | Table of 5 highest games to date along with players' names |
| 22 | HISCOR AWARD | Award given when hiscores are beaten | | 23 | NONE | No award |
| | | | | | 1 PLAY | 1 replay |
| | | | | | 2PLAYS | 2 replays |
| | | | | | 3PLAYS | 3 replays |
| 23 | AWARD MATCH | Upon game end, draws a ten number at random (00 to 90) which is displayed in « MATCH ». Any player(s) whose last 2 scores digits match this number are given the award set here. | | 18 | DISABLE | No award |
| | | | | | ENABLE | 1 replay if setting 7 = NORMAL, none otherwise |
| 24 | SLAM | Enables or disables SLAM feature: the weighted switch on the back of the coin door + captive ball in the cabinet Note : when triggered, the SLAM cancels the whole game in play | | new | DISABLE | Slam disabled |
| | | | | | ENABLE | Slam enabled |
| 25 | ENTER NAMES | Selects the names entry mode for the players' names in the high scores table (if enabled) The « SLOTS » mode requires a re-wiring of right and center coin slots switches (description on demand) | | new | NORMAL | Normal mode: the CREDIT button is used |
| | | | | | SLOTS | Right and center coin slots switches scroll the letters |
| 26 | POWER IDLE | Turns off all playfield illumination lamps after a given delay (when in « game over » mode), to save energy | | new | DISABLE | Lamps are never turned off (normal mode) |
| | | | | | 30 SEC | Lamps are turned off 30 seconds after last played game ended |
| | | | | | 2 MIN | Lamps are turned off 2 minutes after last played game ended |
| | | | | | 4 MIN | Lamps are turned off 4 minutes after last played game ended |
| 27 | USE KNOCKER | Disables « knocker » coil that 'knocks' for every replay earned (special, match, high scores, beat scores) Notice: the coil can still be energized in COILS TEST menu | | new | DISABLE | Knocker coil disabled |
| | | | | | ENABLE | Knocker coil enabled |
| 28 | CHECK BUMPER | Periodically monitors all pop bumpers to check if they are locked in down position (electrical or mechanical failure). In case of trouble, the game in play ends and the switch number associated to the faulty bumper is displayed : see ERRORS page | | new | DISABLE | Bumpers are not monitored |
| | | | | | ENABLE | Bumpers are periodically monitored |
| 29 | SINGLE PLAYER | Restricts the number of players to 1 (impossible to add a new player after the first) and disables force-restarting the game in play Useful for tournaments, school festivals, etc | | new | DISABLE | Normal mode: 1 to 4 players can play at the same time |
| | | | | | ENABLE | Only 1 player can play |
| 30 | 7 DIGIT MODE | For System80 games: allows to switch to 7-digit scores displays, as on System80A series WARNING : this mode requires a specific displays rewiring in the front head + 7-digit displays, or new specific LED displays | | new | DISABLE | Classic 6-digit System80 display |
| | | | | | ENABLE | 7-digit System80A display |

Error codes

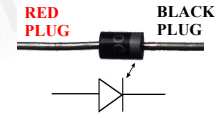
Upon energizing each coil (solenoids 1 2 5 6 8 9 only), the PI-80 board measures the current flooding thru the coil and scans its associated switches (for example, bottom hole switch, or the switches behind the drop targets).
 The board also monitors the current during a game in play.
 In case of trouble, an error message « ERR=n » is displayed along with the faulty coil number, and the game currently in play immediately comes to an end.
Furthermore, the PI-80 board puts itself in protection mode:
no new game can be started (to avoid further damage to the board and/or the game) but the user can still enter the test menus.
 If the player tries to start a game, the TILT relay flashes briefly.
 When in protection mode, the coils driving relay (on the bottom left corner of the board) will be turned off, and the red LED atop the relay will turn off as well.



| Error | Description | Possible reasons | What to check |
|-------|---|--|---|
| 1 | Some current is already flooding thru the coil before energizing it | Coil (or its diode in parallel) is dead shorted Driving transistor (under the playfield or on the PI-80 board) is dead shorted | Check all CPU-driven coils and their associated diode in parallel Check all 9 power transistors QS1..QS9 and their associated diodes DTS1..DTS9 |
| 2 | No current is flooding thru the coil, although it is energized | Dead open coil (cut wire) Fuse in serial with the coil is blown or missing (do not replace it blindly, look for the true reason behind!) Driving transistor (under the playfield or on the PI-80 board) is dead open | Check that given coil Check the fuse of that coil (refer to game's manual), then the coil itself and its associated diode Check the related power transistor QSx, x = given coil number |
| 3 | Some current is still flooding thru the coil, although it is no longer energized | Most of the time, the diode in parallel to the coil has just died shorted <i>Also refer to error #1</i> | Check all CPU-driven coils and their associated diode in parallel Check all 9 power transistors QS1..QS9 and their associated diodes DTS1..DTS9 |
| 4 | A switch is still detected closed after 5 consecutive coil firing attempts | Badly adjusted contact Drop target cannot be brought back up: broken target, or reset mechanism not operating or too weak Ball stuck on the bottom of a hole: eject mechanism not operating or too weak | Check all contacts at the bottom of the holes, the upkickers.. Check the coil mechanical assy Check the coil plunger and its reference number (refer to game's manual) |
| 5 | BUMPER ERROR : one of the pop bumpers is locked in down position for more than 2 seconds | Badly adjusted cup switch Jammed or faulty pop bumper mechanism | Check that the 2 pairs of switches under the pop bumper are normally open Check that the pop bumper plunger and ring move freely and don't remain stuck in down position |

How to check a coil and its diode

Desolder one leg of the diode, otherwise the diode in parallel with the coil would corrupt each other's measurement
 Personal tip: cut the diode's leg at half length, so that it will be easy to restore the leg by soldering over the cut after the measurements
 Measure the coil's **resistance** (in ohms) on the multimeter's lowest resistance setting
 Refer to the chart below for the expected resistance value depending on coil part number; a difference of +/- 20% is allowed
 Measure the diode's **voltage** (in volts) on "diode" setting, or on the lowest resistance setting if the multimeter has no "diode" setting
 It should read between 0.5 and 0.7V with red plug on NON BANDED side and black plug on BANDED side, and open when the plugs are reversed
 If faulty, the diode must be replaced by a 1N4007



| Gottlieb Part number | Common Coil Usage | Resistance (ohms) | Number of turns | Wire gauge | Wrapper color |
|----------------------|---|-------------------|-----------------|------------|---------------|
| A-1496 | Slingshots (kicking rubbers), pop bumpers | 2,95 | 635 | #23 | yellow |
| A-4893 | Pop bumpers, ball kicker | 2,1 | 535 | #22 | red |
| A-5194 | Gong | 4,5 | 780 | #24 | blue |
| A-5195 | Knocker, hole kicker | 12,3 | 1305 | #26 | white |
| A-16570 | Hole kicker, outhole | 15,5 | 1450 | #27 | green |
| A-16890 | Game Over (Q) and Tilt (T) relays, coin lockout | 231 | 4000 | #35 | orange |
| A-17564 or A-20558 | Gate relay | 156 | 3400 | #34 | white |
| A-17875 | Flippers (regular strength) | 2,8 / 40,0 | 560 / 1100 | #24/31 | yellow |
| A-17891 | 5 drop targets bank reset | 3,35 | 850 | #22 | white |
| A-18102 | 3 drop targets bank reset, or 7 drop targets bank reset (2 coils in parallel) | 9 | 1430 | #24 | red |
| A-18318 | 4 drop targets bank reset | 6,7 | 1130 | #24 | orange |
| A-18642 | Memory/drop targets | 58 | 1590 | #33 | white |
| A-19300 | Ball kicker | 7,8 | 1075 | #25 | orange |
| A-20095 | Super flippers (high power) | 1,55 / 35,5 | 450/900 | #22/31 | red |

chart (c) Gottlieb
 About gauge value: the lower the gauge value, the thicker the actual coil wire
 About wrapper color: the color may no longer match if the coil is not the original Gottlieb-made one.

Status LED

Several LED lamps, of different colors, give information about the general state of the PI-80 board and are very helpful to diagnose failures.
The location and availability of each LED depend on the PI-80 board's revision, ask if unsure ; also, red LED may sometimes be replaced by orange LED.
Each LED's normal state is written in **bold**.

| LED feature | Board's Revision | | | | When lit | When unlit | Additional information and what to check |
|--|------------------|-----|------------|----------|---|--|---|
| | 1.0 | 1.1 | 1.2 and up | 01/03/17 | | | |
| 12V general power supply | | LD1 | LD1 | LD1 | 12V available | 12V missing | This LED lights up when the game is turned on. If not, check the wires coming to pins 1 & 2 of power connector A2J1 Check the « POWER SUPPLY » fuse in the cabinet, refer to the game's original manual for exact location and rating Measure the 12V DC voltage across pins 1 & 3 of screw-clamp connector J1 |
| 5V power supply (PI-80 board, pop bumpers, sound board...) | LD1 | LD2 | LD2 | LD2 | 5V available | 5V missing | This LED lights up when the game is turned on. If not, there is a problem around U1 chip, or the 12V general power supply is missing (12V LED unlit, if present). Measure the 5V DC voltage across pins 2 & 3 of screw-clamp connector J1 |
| 60V, 42V, 8V power supplies (displays) | LD2 | LD3 | LD3 | LD3 | 60V 42V 8V available | 60V 42V 8V missing | This LED lights up when the game is turned on. If not, there is a problem around U2 chip, or the 12V general power supply is missing (12V LED unlit, if present). Check the fast-blow 100mA fuse (brown or black cylinder) mounted on a socket to the right of connector A2J3. Measure the 60V DC voltage across pins 1 & 4 of connector A2J3 Measure the 42V DC voltage across pins 3 & 4 of connector A2J3 Measure the 8V DC voltage at test point TP8 below connector A2J1 |
| Solenoids relay (RLY1) | LD4 | LD4 | LD4 | LD4 | Relay is energized (during a game in play) | Relay is off | The relay is normally turned off when the game is turned on, then is energized when a play is started. In case of error detected by the PI-80 board on any of the coils 1 2 5 6 8 or 9, the relay is turned off to avoid further damage. Refer to the previous « ERRORS » page for diagnostics. |
| Test point for lamps/coils outputs | LD3 | LD5 | LD5 | LD5 | Tested transistor is on | No test in progress , or tested transistor is bad | This LED is normally off, it is used for transistor test purposes only. With a grip wire, connect the test point TPT (under the LED) to the desired lamp/coil test point. This will energize the corresponding output. If the LED is lit: the transistor under test is most probably good (base-emitter junction flooding) If the LED is unlit: the transistor is most probably defective (base-emitter junction open) |
| A current floods thru coils 1 2 5 6 8 or 9 | | | LD6 | LD6 | A current is flooding | No current is flooding | This LED is normally off, and is on when either coil 1 2 5 6 8 or 9 is briefly energized. If the LED is on all the time: one of the output coils transistors (Qsx) or its transil diode (DTSx) is shorted. If the LED is never lit: the relay RLY1 has been turned off due to a problem, or the « SOLENOIDS » fuse in the cabinet is blown. Refer to the previous « ERRORS » page for diagnostics. Also, check the « SOLENOIDS » fuse in the cabinet, refer to the game's original manual for exact location and rating |
| RM5 coin validator: output 4 | | | | LD7 | A coin has been inserted | No coin detected | Each LED is normally unlit, and turns on briefly only when a coin is sensed by the validation of the matching type in slots 4/5/6. If the LED is always on : validator is defective or wrongly connected. If the LED is always off when a coin is inserted : wrong coin type, faulty flat cable connection, defective validator. |
| RM5 coin validator: output 5 | | | | LD8 | A coin has been inserted | No coin detected | |
| RM5 coin validator: output 6 | | | | LD9 | A coin has been inserted | No coin detected | |
| RM5 coin validator: +12V power supply | | | | LD10 | Validator is powered | No power supply to the validator | This LED is normally on upon game power-up. If the LED is off : faulty flat cable connection or defective validator. |

NAME Alien Star
SERIES SYSTEM-80A
GAME PROM NUMBER 689
DATE August 1984
NUMBER OR BALLS 2
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|------------|---|--------------------------|-------------------|---|
| 0 | BACKGD SND | Turns off background sound: the game plays silently between scored points | 31 | DISABLE ENABLE | No background sound Regular background sound |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|---|
| EASY | Refer to « NORMAL » |
| NORMAL | A-L-I-E-N bullseye targets + capture lamp in 3-ball mode only (5 ball mode: not remembered) |
| HARD | Refer to « NORMAL » |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|--------------|----------------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | Hole | F13 : 1A sloblo (*1) | QS1 | A-16570 |
| SOL 8 | A3J5-8 | Knocker | <i>none</i> | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F13 : 1A sloblo (*1) | QS9 | A-16570 |
| L12 | A3J3-25 | Ball Release | F12 : 1A sloblo | QL12 (*P) | A-16570 |

(*1) = the same fuse is shared by those 2 coils

(*P) = drives a PNP 2N5875 transistor, remotely installed under the playfield

| | | |
|--------------------------|---|---|
| NAME | Amazon Hunt | |
| SERIES | SYSTEM-80A | |
| GAME PROM NUMBER | 684 & 684B | The 684B version has different switch numbers assigned to the drop targets and the left/right holes |
| DATE | September 1983 | The 684B was released in september 1985 |
| NUMBER OR BALLS | 1 | |
| SOUND BOARD | Two versions : - Speech (but does not speak) - Non speech (the most common one) The version with the speech sound board is not equipped with the speech processor SC01 | |
| PI-FX COMPATIBLE? | Yes for the non speech version | |

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|------------|--|--------------------------|-------------------|---|
| 0 | BACKGD SND | Turns off background melody: the game plays silently between scored points | 31 | DISABLE ENABLE | No background melody Regular background melody |
| 1 | GAME TYPE | Selects the playfield model : normal (the most common, released in 1983) or specific (B model, rare, released in 1985) <i>Note : the normal game PROM was stamped « 684 » or « 684A », the specific prom was stamped « 684B »</i> | new | NORMAL 684-B | Normal playfield « B » playfield |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|---|
| EASY | No parameter is remembered |
| NORMAL | No parameter is remembered |
| HARD | Center left and right black drop targets (only those 2 are brought back up) |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|------------------|----------------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | Right Bank Trip | F11 : 2A sloblo (*1) | QS1 | A-5194 |
| SOL 2 | A3J4-13 | Left Bank Trip | F11 : 2A sloblo (*1) | QS2 | A-5194 |
| SOL 5 | A3J4-6 | Left Bank Reset | F11 : 2A sloblo (*1) | QS5 | A-17891 |
| SOL 6 | A3J4-12 | Right Bank Reset | F11 : 2A sloblo (*1) | QS6 | A-17891 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F10 : 1A sloblo | QS9 | A-5195 |
| L12 | A3J3-25 | Left Hole | F12 : 2A sloblo (*2) | QL12 (*P) | A-5194 |
| L13 | A3J3-24 | Right Hole | F12 : 2A sloblo (*2) | QL13 (*P) | A-5194 |

(*1) = the same fuse is shared by those 4 coils

(*2) = the same fuse is shared by those 2 coils

(*P) = drives a PNP 2N5879 transistor, remotely installed under the playfield

NAME Black Hole
SERIES SYSTEM-80
GAME PROM NUMBER 668
DATE October 1981
NUMBER OR BALLS 3

SOUND BOARD Two versions :
 - Speech « domestic »
 - Non speech « export »

PI-FX COMPATIBLE? Yes for the non speech
 « export » version

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|---------------|--|--------------------------|---------------------------|--|
| 0 | SOUND MODE | Selects which sound board is installed in the game: classic (non-speech) or speech. <i>Note: this is the same sound mode setting as in SOUND SETTING general menu</i> | new | CLASSIC SPEECH | Classic sound board (also compatible with PI-FX board) Speech sound board |
| 1 | OPEN GATE | Open gate mode for upper playfield gate, when the balls is kicked from the bottom playfield. These "easy" modes allow for longer playing time on the bottom playfield. | new | NORMAL 7 SEC B-5000 | Normal return gate behaviour Keep return gate open for 7 seconds Keep return gate open as long as earned bonus is < 5,000 points |
| 2 | BACKGD SND | Turns off background sound (both during and out of multiball): the game plays silently between scored points | 32 | DISABLE ENABLE | No background sound Regular background sound |
| 3 | ANIMAT EXPAND | Prevents the game's various relays & return game from « clicking » during the attract mode (which therefore becomes completely silent) and also animates lamps 4..6 (bottom playfield) and 7 (top playfield spinner) | new | DISABLE ENABLE | Regular attract mode Expanded attract mode |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|----------------|--|
| EASY | Refer to « NORMAL » + spinner + bottom right « open gate » rollover + top right « HOLE » rollover + return gate status |
| NORMAL | Yellow bullseye targets + top rollovers + lit BLACK/HOLE drop targets + capture hole (top playfield) |
| HARD | Yellow bullseye targets + top rollovers + lit BLACK/HOLE drop targets |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|------------------------------------|----------------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | 4 Pos. Bank Upper Playfield | F14 : 2A sloblo (*2) | QS1 | A-18318 |
| SOL 2 | A3J4-13 | 5 Pos. Bank Upper playfield | F14 : 2A sloblo (*2) | QS2 | A-17891 |
| SOL 5 | A3J4-6 | 4 Pos. Bank Lower Playfield | F18 : 2A sloblo | QS5 | A-18318 |
| SOL 6 | A3J4-12 | 3 Pos. Bank Lower Playfield | F20 : 1A sloblo (*3) | QS6 | A-18102 |
| SOL 8 | A3J5-8 | Capture Hole Upper Playfield | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F15 : 1A sloblo (*1) | QS9 | A-16570 |
| L8 | A3J2-10 | Ball Return Gate Lower Playfield | F19 : 1A sloblo | U21/U22-11 (*P) | A-16570 |
| L12 | A3J3-25 | Hole Kicker Lower Playfield | F20 : 1A sloblo (*3) | QL12 (*P) | A-16570 |
| L13 | A3J3-24 | Hole Kicker Upper Playfield | F15 : 1A sloblo (*1) | QL13 (*P) | A-16570 |
| L14 | A3J3-22 | Ball Lift Kicker Lower Playfield | F17 : 6 1/2 A sloblo | QL14 (*P) | A-4893 |
| L15 | A3J3-23 | Trough Ball Gate (Card Holder) | F16 : 1A sloblo | QL15 (*P) | A-16570 |
| L16 | A3J3-13 | U Relay | none | QL16 (*P) | A-16890 |
| L17 | A3J3-14 | L Relay | none | QL17 (*P) | A-16890 |
| L18 | A3J3-16 | Wireform Ball Gate Upper Playfield | none | QL18 (*P) | A-17564 |

Main playfield (upper)

Bottom playfield (lower)

(*1) = the same fuse is shared by those 2 coils

(*2) = the same fuse is shared by those 2 coils

(*3) = the same fuse is shared by those 2 coils

(*P) = drives a PNP 2N5875 transistor, remotely installed under the playfield

NAME Circus
SERIES SYSTEM-80
GAME PROM NUMBER 654
DATE June 1980
NUMBER OR BALLS 1
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|---------------|---|--------------------------|--------------------|--|
| 0 | MEMORY LEVEL1 | Remember from ball to ball, if lit: top rollovers, <i>special</i> , center rollover | 31 | LIBERAL CONSERV | Storage enabled No storage (harder) |
| 1 | MEMORY LEVEL2 | Remember from ball to ball, if lit: bottom left/right rollovers, spinner | 32 | LIBERAL CONSERV | Storage enabled No storage (harder) |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|--|
| EASY | Refer to « NORMAL » |
| NORMAL | Depends on the 2 specific settings |
| HARD | Refer to « NORMAL » |
| HARDEST | No parameter is remembered (has priority over specific settings) |

Coils driven by the PI-80, and associated fuses

| Coil or Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|---------------------|-------------------|-------------------|----------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | Hole Kicker | 1A sloblo (*1) | QS1 | A-16570 |
| SOL 2 | A3J4-13 | Roto Unit | 2A sloblo (*2) | QS2 | A-17891 |
| SOL 5 | A3J4-6 | Target bank reset | 2A sloblo (*2) | QS5 | A-18318 |
| SOL 8 | A3J5-8 | Knocker | <i>none</i> | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | 1A sloblo (*1) | QS9 | A-16570 |

(*1) = the same fuse is shared by those 2 coils

(*2) = the same fuse is shared by those 2 coils

NAME Counterforce
SERIES SYSTEM-80
GAME PROM NUMBER 656
DATE August 1980
NUMBER OR BALLS 1
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|----------------|--|--------------------------|--------------------|--|
| 0 | EXTRABALL MODE | Turn off the <i>extraball</i> target once the missiles bank isreset at the end of the chase cycle | 31 | LIBERAL CONSERV | Extraball lamp remains lit Extraball lamp is turned off (harder) |
| 1 | SPECIAL MODE | Give a replay in addition to turning the <i>special</i> target lamp on, when all missiles are destroyed on the 1st row | 32 | LIBERAL CONSERV | Give a replay and turns the <i>special</i> target lamp on Turn the <i>special</i> target lamp on alone (harder) |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|--|
| EASY | The missiles sequence always resumes at the 1st row for each ball in play |
| NORMAL | The missiles sequence resumes at the previous position and the slowest speed |
| HARD | The missiles sequence resumes at the previous position and the same speed |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil or Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|---------------------|-------------------|-------------------------|----------------|-----------------|-------------------------|
| SOL 8 | A3J5-8 | Knocker | <i>none</i> | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | 1A sloblo (*1) | QS9 | A-1496 |
| SOL 1 | A3J4-7 | Hole kicker | | QS1 | A-1496 |
| SOL 2 | A3J4-13 | Bank reset | 2A sloblo (*2) | QS2 | A-16570 |
| SOL 5 | A3J4-6 | Bank reset | | QS5 | A-16570 |
| L12 | A3J3-25 | Drop target trip coil 2 | <i>none</i> | QL12 | A-18642 |
| L13 | A3J3-24 | Drop target trip coil 4 | <i>none</i> | QL13 | A-18642 |
| L14 | A3J3-22 | Drop target trip coil 6 | <i>none</i> | QL14 | A-18642 |
| L15 | A3J3-23 | Drop target trip coil 1 | <i>none</i> | QL15 | A-18642 |
| L16 | A3J3-13 | Drop target trip coil 3 | <i>none</i> | QL16 | A-18642 |
| L17 | A3J3-14 | Drop target trip coil 5 | <i>none</i> | QL17 | A-18642 |
| L18 | A3J3-16 | Drop target trip coil 7 | <i>none</i> | QL18 | A-18642 |

(*1) = the same fuse is shared by those 2 coils

(*2) = the same fuse is shared by those 2 coils

NAME Devil's Dare
SERIES SYSTEM-80A
GAME PROM NUMBER 670
DATE August 1982
NUMBER OR BALLS 3
SOUND BOARD Two versions :
- Speech « domestic »
- Non speech « export »
PI-FX COMPATIBLE? Yes for the non speech
« export » version

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|---------------|---|--------------------------|-------------------|--|
| 0 | SOUND MODE | Selects which sound board is installed in the game: classic (non-speech) or speech. <i>Note: this is the same sound mode setting as in SOUND SETTING general menu</i> | new | CLASSIC SPEECH | Classic sound board Speech sound board |
| 1 | RELEASE CAVE | Once the 1 st ball in play is captured into the « CAPTURE CAVE » hole and the 2 nd ball in play is lost, this 1 st captured ball is put back in play instead of losing it (idea from Thibault Grandvilliers) | new | DISABLE ENABLE | 1 st ball ejected from « CAPTURE CAVE » hole and lost 1 st ball ejected from « CAPTURE CAVE » hole and put back in play |
| 2 | BONUS CNTDOWN | Bonus count down speed | new | NORMAL FAST | Slow Fast |
| 3 | BACKGD SND | Turns off background music: the game plays silently between scored points | 32 | DISABLE ENABLE | No background music (only once when ball is put in play) Regular background music |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|--|
| EASY | Refer to « NORMAL » |
| NORMAL | « CAPTURE CAVE » hole's capture lamp |
| HARD | Refer to « NORMAL » |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|-------------------------------|----------------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | Top Bank | F10 : 1A sloblo (*1) | QS1 | A-18102 |
| SOL 2 | A3J4-13 | Top Ball Kicker (Captive Pit) | F13 : 2A sloblo (*2) | QS2 | A-5194 |
| SOL 3 | A3J6-3 | Hole (Captive Cave) | F12 : 1A sloblo | QS3 (*P) | A-5195 |
| SOL 4 | A3J6-2 | Ball Save Relay (B) | none | QS4 | A-16890 |
| SOL 5 | A3J4-6 | Left Bank | F13 : 2A sloblo (*2) | QS5 | A-17891 |
| SOL 6 | A3J4-12 | Right Bank (center targets) | F13 : 2A sloblo (*2) | QS6 | A-17891 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F10 : 1A sloblo (*1) | QS9 | A-16570 |
| L12 | A3J3-25 | Ball Release | F11 : 1A sloblo | QL12 (*P) | A-16570 |

(*1) = the same fuse is shared by those 2 coils

(*2) = the same fuse is shared by those 3 coils

(*P) = drives a PNP 2N5875 transistor, remotely installed under the playfield

| | | |
|--------------------------|--------------|---|
| NAME | Eclipse | |
| SERIES | SYSTEM-80 | |
| GAME PROM NUMBER | 671 | |
| DATE | October 1981 | |
| NUMBER OR BALLS | 3 | |
| SOUND BOARD | Non speech | Cheap version of BLACK HOLE (non speech, single playfield) A « 671K » (K for KIT) version exists, to install in a JAMES BOND cabinet |
| PI-FX COMPATIBLE? | Yes | |

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|----------------|--|--------------------------|-------------------|--|
| 0 | KICKING TARGET | Selects the operating mode of the kicking target (bottom right corner): allows to cumulate several scorings of the top 3 green rollovers, or just 1 as on the original board | new | NORMAL CUMULAT | Green lamp lights just once Cumulates green lamp scorings |
| 1 | ROLLUNDER MODE | Selects the speed at which the 3 50,000/extraball/special lamps of the top rollunder scroll, the slowest speed allows to aim at the desired lit lamp precisely | new | NORMAL SLOW | Normal speed (fast) Slow speed (easier) |
| 2 | BACKGD SND | Turns off background sound (both during and out of multiball): the game plays silently between scored points | 32 | DISABLE ENABLE | No background sound Regular background sound |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|----------------|--|
| EASY | Strobing lamp (top left rollunder) + kicking target + top rollovers are remembered |
| NORMAL | Kicking target + top rollovers are remembered |
| HARD | Top rollovers are remembered |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses (Eclipse 1st Edition)

| Coil or Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|---------------------|-------------------|--------------|----------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | 4 Pos. Bank | 2A sloblo (*1) | QS1 | A-18318 |
| SOL 2 | A3J4-13 | 5 Pos. Bank | 2A sloblo (*1) | QS2 | A-17891 |
| SOL 5 | A3J4-6 | Ball Shooter | 1A sloblo (*2) | QS5 | A-19300 |
| SOL 6 | A3J4-12 | 3 Pos. Bank | 1A sloblo (*2) | QS6 | A-18102 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | 1A sloblo (*2) | QS9 | A-16570 |
| L12 | A3J3-25 | Ball Gate | 1A sloblo | QL12 (*P) | A-16570 |
| L13 | A3J3-24 | Hole Kicker | 2A sloblo (*1) | QL13 (*P) | A-1496 |

(*1) = the same fuse is shared by those 3 coils

(*2) = the same fuse is shared by those 3 coils

(*P) = drives a PNP 2N5875 transistor, remotely installed under the playfield

NAME EIDorado City of Gold
SERIES SYSTEM-80A
GAME PROM NUMBER 692
DATE March 1985
NUMBER OR BALLS 1
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|---------------|---|--------------------------|-------------------|---|
| 0 | BACKGD SND | Turns off background melody: the game plays silently between scored points | 31 | DISABLE ENABLE | No background melody Regular background melody |
| 1 | ROTATE TARGET | Both pop bumpers and the 30-pts switch move the flashing lamp on to the next drop target and rollover, just like the spot targets | new | DISABLE ENABLE | Disabled Enabled |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|--|
| EASY | Refer to « NORMAL » |
| NORMAL | Remembers when the top target bank has been hit in full once |
| HARD | No parameter is remembered |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|---------------------------|----------------------|-----------------|-------------------------|
| SOL 2 | A3J4-13 | Top Target Bank Reset (*) | F12 : 3A sloblo (*1) | QS2 | A-18318 |
| SOL 5 | A3J4-6 | Bottom Target Bank Reset | F13 : 2A sloblo | QS5 | A-17891 |
| SOL 6 | A3J4-12 | Top Target Bank Reset (*) | F12 : 3A sloblo (*1) | QS6 | A-18318 |
| SOL 8 | A3J5-8 | Knocker | no | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F14 : 1A sloblo | QS9 | A-5195 |

(*) driven at the same time by the CPU

(*1) = the same fuse is shared by those 2 coils

NAME Force II
SERIES SYSTEM-80
GAME PROM NUMBER 661
DATE January 1981
NUMBER OR BALLS 2
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|----------------------------|--------------|--|-----------------------------|---------------------|--|
| 0 | 1-MILL AWARD | Additional award each time 1-million points are reached <i>Note: same as general setting 19</i> | 32 | DISABLE ENABLE | No award Award depends on general setting 7 |
| 1 | GONG AWARD | Turns off gong that rings upon each awarded play (scoring or <i>special</i>) | new | DISABLE ENABLE | Gong is turned off Gong is turned on |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|---|
| EASY | Refer to « NORMAL » |
| NORMAL | Top blue/white/red rollovers + bonus lamps before red/blue drop targets |
| HARD | Refer to « NORMAL » |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil or Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|---------------------|-------------------|---|----------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | Outhole | 1A sloblo (*1) | QS1 | A-16570 |
| SOL 2 | A3J4-13 | Top Drop Target Bank | 2A sloblo (*2) | QS2 | A-18318 |
| SOL 5 | A3J4-6 | Right Drop Target Bank | 2A sloblo (*2) | QS5 | A-17891 |
| SOL 6 | A3J4-12 | Left Drop Target Bank | 2A sloblo (*2) | QS6 | A-17891 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Trough | 1A sloblo (*1) | QS9 | A-16570 |
| L12 | A3J3-25 | Memory Relay | none | QL12 | A-16890 |
| L13 | A3J3-24 | Ball Kicker | 2A sloblo (*2) | QL13 (*P) | A-5194 |
| L14 | A3J3-22 | Hole Kicker | 1A sloblo (*1) | QL14 (*P) | A-18642 |
| L15 | A3J3-23 | #1 Left Drop Target trip coil (bottom left) | none | QL15 | A-18642 |
| L16 | A3J3-13 | #2 Left Drop Target trip coil | none | QL16 | A-18642 |
| L17 | A3J3-14 | #3 Left Drop Target trip coil | none | QL17 | A-18642 |
| L18 | A3J3-16 | #4 Left Drop Target trip coil | none | QL18 | A-18642 |
| L19 | A3J3-15 | #5 Left Drop Target trip coil | none | QL19 | A-18642 |
| L20 | A3J3-21 | #1 Top Drop Target trip coil (left) | none | QL20 | A-18642 |
| L21 | A3J3-20 | #2 Top Drop Target trip coil | none | QL21 | A-18642 |
| L22 | A3J3-18 | #3 Top Drop Target trip coil | none | QL22 | A-18642 |
| L23 | A3J3-19 | #4 Top Drop Target trip coil | none | QL23 | A-18642 |
| L24 | A3J3-9 | #1 Right Drop Target trip coil (top left) | none | QL24 | A-18642 |
| L25 | A3J3-10 | #2 Right Drop Target trip coil | none | QL25 | A-18642 |
| L26 | A3J3-12 | #3 Right Drop Target trip coil | none | QL26 | A-18642 |
| L27 | A3J3-11 | #4 Right Drop Target trip coil | none | QL27 | A-18642 |
| L28 | A3J3-Y | #5 Right Drop Target trip coil | none | QL28 | A-18642 |

(*1) = the same fuse is shared by those 3 coils

(*2) = the same fuse is shared by those 3 coils

(*P) = drives a PNP 2N5875 transistor, remotely installed under the playfield

NAME Haunted House

SERIES SYSTEM-80
GAME PROM NUMBER 669
DATE February 1982
NUMBER OR BALLS 1
SOUND BOARD Speech but not equipped with the speech processor SC01
PI-FX COMPATIBLE? No

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|---------------|--|--------------------------|-------------------|---|
| 0 | UPKICK CONFIG | Selects the way the « upkicker » (top right hole on the main playfield) is driven It required different GAME PROMs on the original CPU board: version 668/1 (proto) or 668/2 (normal) | new | NORMAL PROTO | Driven by SOL2 (normal production run) Driven by LAMP 14 + transistor on the playfield (preseries playfield) |
| 1 | BACKGD SND | Turns off background melody: the game plays silently between scored points In this mode, rollover switch 04 (on the main playfield, under the bottom left pop bumper) plays another sound (fix) | new | DISABLE ENABLE | No background melody Regular background melody |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|---|
| EASY | Refer to « NORMAL » |
| NORMAL | Bullseye targets (top playfield) + 1-2-3-4-5 targets (main playfield) |
| HARD | Refer to « NORMAL » |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|---|------------------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | Top center hole | F15 : 2A sloblo (*1) | QS1 | A-16570 |
| SOL 2 (*C) | A3J4-13 | Up Kicker (top right hole), ejects the ball to the upper playfield : on production games | F14 : 2.5A sloblo (*2) | QS2 | A-5194 |
| SOL 5 | A3J4-6 | 4 Bank (upstairs) | F15 : 2A sloblo (*1) | QS5 | A-18102 |
| SOL 6 | A3J4-12 | Special hole (lower) | F15 : 2A sloblo (*1) | QS6 | A-16570 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F15 : 2A sloblo (*1) | QS9 | A-5195 |
| L12 | A3J3-25 | K Relay (lower), drives the Vertical Up Kicker (VUK) from lower playfield | none | QL12 | A-20558 + A-4893 |
| L13 | A3J3-24 | 5 Bank (lower) | F14 : 2.5A sloblo (*2) | QL13 (*P) | A-17891 |
| L14 (*C) | A3J3-22 | Up Kicker (top right hole), ejects the ball to the upper playfield : on sample games | F14 : 2.5A sloblo (*2) | QL14 (*P) | A-5194 |
| L15 | A3J3-23 | Extraball Right Side Kicker | F14 : 2.5A sloblo (*2) | QL15 (*P) | A-5195 |
| L16 | A3J3-13 | Trap Door, under the ramp to the upper playfield | F14 : 2.5A sloblo (*2) | QL16 (*P) | A-17875 |
| L17 | A3J3-14 | U Relay, powers the bottom playfield flippers | none | QL17 | A-16890 |

(*C) this coil is wired in one of those 2 possible configurations, depending on the main playfield version (production run or pre-series) ; the actual configuration must be selected by means of specific setting #0 : CONFIG UPKICK

| |
|---------------------------|
| Main playfield |
| Lower playfield |
| Upper playfield |
| Pre-series main playfield |

(*1) = the same fuse is shared by those 4 coils

(*2) = the same fuse is shared by those 4 coils

(*P) = drives a PNP 2N5875 transistor, remotely installed under the playfield

NAME

Haunted House Multiball

(C) Pascal Janin & Cédric Bérenger

SERIES SYSTEM-80
GAME PROM NUMBER None (based on 669)
DATE January 2014
NUMBER OR BALLS 3
SOUND BOARD Speech
PI-FX COMPATIBLE? No

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|---------------|--|--------------------------|-------------------|---|
| 0 | UPKICK CONFIG | Selects the way the « upkicker » (top right hole on the main playfield) is driven It required different GAME PROMs on the original CPU board: version 668/1 (proto) or 668/2 (normal) | new | NORMAL PROTO | Driven by SOL2 (normal production run) Driven by LAMP 14 + transistor on the playfield (preseries playfield) |
| 1 | BACKGD SND | Turns off background melody: the game plays silently between scored points In this mode, rollover switch 04 (under the main playfield's bottom left pop bumper) plays another sound (fix) | new | DISABLE ENABLE | No background melody Regular background melody |
| 2 | MULTIBALL | Selects the multiball mode Refer to the Haunted House Multiball specific manual available on line | new | NORMAL SELECT | Normal mode Select mode |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|---|
| EASY | Refer to « NORMAL » |
| NORMAL | Bullseye targets (top playfield) + 1-2-3-4-5 targets (main playfield) |
| HARD | Refer to « NORMAL » |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|---|------------------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | Top center hole | F15 : 2A sloblo (*1) | QS1 | A-16570 |
| SOL 2 (*C) | A3J4-13 | Up Kicker (top right hole), ejects the ball to the upper playfield : on production games | F14 : 2.5A sloblo (*2) | QS2 | A-5194 |
| SOL 3 | A3J6-3 | Ball release (lower playfield) | 1A sloblo (*3) | QS3 | A-16570 |
| SOL 4 | A3J6-2 | Ball release (main playfield) | F15 : 2A sloblo (*1) | QS4 | A-16570 |
| SOL 5 | A3J4-6 | 4 Bank (upstairs) | F15 : 2A sloblo (*1) | QS5 | A-18102 |
| SOL 6 | A3J4-12 | Special hole (lower) | F15 : 2A sloblo (*1) | QS6 | A-16570 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F15 : 2A sloblo (*1) | QS9 | A-5195 |
| L12 | A3J3-25 | K Relay (lower), drives the Vertical Up Kicker (VUK) from lower playfield | none | QL12 | A-20558 + A-4893 |
| L13 | A3J3-24 | 5 Bank (lower) | F14 : 2.5A sloblo (*2) | QL13 (*P) | A-17891 |
| L14 (*C) | A3J3-22 | Up Kicker (top right hole), ejects the ball to the upper playfield : on sample games | F14 : 2.5A sloblo (*2) | QL14 (*P) | A-5194 |
| L15 | A3J3-23 | Extraball Right Side Kicker | F14 : 2.5A sloblo (*2) | QL15 (*P) | A-5195 |
| L16 | A3J3-13 | Trap Door, under the ramp to the upper playfield | F14 : 2.5A sloblo (*2) | QL16 (*P) | A-17875 |
| L17 | A3J3-14 | U Relay, powers the bottom playfield flippers | none | QL17 | A-16890 |
| L49 | A3J3-H | Z Relay | none | QL49 | A-16890 |

(*C) this coil is wired in one of those 2 possible configurations, depending on the main playfield version (production run or pre-series) ; the actual configuration must be selected by means of specific setting #0 : CONFIG UPKICK

Main playfield (*1) = the same fuse is shared by those 5 coils
 Lower playfield (*2) = the same fuse is shared by those 4 coils
 Upper playfield (*3) = separate dedicated fuse

Pre-series main playfield (*P) = drives a PNP 2N5875 transistor, remotely installed under the playfield

Specific to this Multiball version

NAME Ice Fever
SERIES SYSTEM-80A
GAME PROM NUMBER 695
DATE May 1985
NUMBER OR BALLS 1
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|------------------|---|--------------------------|-------------------|---|
| 0 | BACKGD SND | Controls background sound (crowd) level | 31 | LOW HIGH | Low volume High volume |
| 1 | ATTRAC + SND | Turns off sound and lights animation over bonus lamps ramp at regular periods of time in <i>game over</i> mode | 32 | DISABLE ENABLE | Animation is turned off Animation is turned on |
| 2 | TICKET DISPENSER | Dispenses a given number of tickets (set by common setting 22 « HISCORE AWARD ») when the highest game to date is beaten. This feature was available in specific game prom version « 695/Y ». | Prom version /Y | DISABLE ENABLE | Ticket dispenser disabled Ticket dispenser enabled |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|--|
| EASY | Top I-C-E rollover lamps, multiplier, special (if not scored) and 1-2-3 goals are remembered |
| NORMAL | Multiplier, special (if not scored) and 1-2-3 goals are remembered |
| HARD | 1-2-3 goals are remembered |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

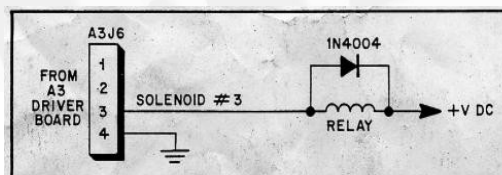
| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|-------------------------------------|----------------------|-----------------|-------------------------|
| SOL 2 | A3J4-13 | Target Bank Reset | F10 : 1A sloblo (*1) | QS2 | A-18102 |
| SOL 5 | A3J4-6 | « PUCK » Kicker (in the front head) | F9 : 2A sloblo | QS5 | A-5194 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F10 : 1A sloblo (*1) | QS9 | A-5195 |

(*1) = the same fuse is shared by those 2 coils

TICKET DISPENSER CONNECTION

when available in game's specific settings

The ticket dispenser must be connected to SOL3 output on A3J6 connector, as shown on Gottlieb's schematic below:



schematic (c) Gottlieb

NAME Jacks To Open
SERIES SYSTEM-80A
GAME PROM NUMBER 687
DATE May 1984
NUMBER OR BALLS 1
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|---------------|--|--------------------------|-------------------|---|
| 0 | BACKGD SND | Turns off background melody: the game plays silently between scored points | 31 | DISABLE ENABLE | No background melody Regular background melody |
| 1 | ROTATE TARGET | The drop targets must be kicked down in a given order, shown by the corresponding flashing target lamp Otherwise, all targets must be kicked down to try again (much harder play mode) | new | DISABLE ENABLE | Disabled (= normal play mode) Enabled |
| 2 | DOUBLE TOP | Scoring all 4 top rollovers directly lights « double bonus » lamp for the ball in play (easier play mode) <i>Note: in 5 ball mode and at « royal flush » step, scoring all 4 top rollovers proceeds directly to extraball level</i> | new | DISABLE ENABLE | Disabled Enabled |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|----------------|--|
| EASY | Refer to « NORMAL » ; top left and right rollovers mutually unlit each other |
| NORMAL | Current level + drop targets already hit on that level |
| HARD | Current level only (not the targets that were hit) |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|-------------------------|----------------------|-----------------|-------------------------|
| SOL 2 | A3J4-13 | Target Bank Left Reset | F11 : 2A sloblo (*1) | QS2 | A-18318 |
| SOL 5 | A3J4-6 | Target Bank Trip | F12 : 2A sloblo | QS5 | A-5194 |
| SOL 6 | A3J4-12 | Target Bank Right Reset | F11 : 2A sloblo (*1) | QS6 | A-18318 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F10 : 1A sloblo | QS9 | A-5195 |

(*) driven at the same time by the CPU

(*1) = the same fuse is shared by those 2 coils

NAME Mars God of War
SERIES SYSTEM-80
GAME PROM NUMBER 666
DATE January 1981
NUMBER OR BALLS 3
SOUND BOARD Speech
PI-FX COMPATIBLE? No

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|--------------|---|--------------------------|-------------------|---|
| 0 | BACKGD SND | Turns off background sound: the game plays silently between scored points | new | DISABLE ENABLE | No background sound Regular background sound |
| 1 | LAST CHANCE | Enables last chance ball upon the very last ball in game: if the ball is lost thru the outlanes and if at least one ball remains captured in either warbase | 31 | DISABLE ENABLE | Last chance disabled Last chance enabled |
| 2 | SPC-EB LEVEL | Multiplier level above which <i>special</i> and <i>extraball</i> lamps are lit in the warbases | 32 | DISABLE ENABLE | <i>special</i> from 4X, <i>extraball</i> from 3X <i>special</i> from 5X, <i>extraball</i> from 4X (harder) |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|---|
| EASY | Refer to « NORMAL » |
| NORMAL | M-A-R-S rollovers + spinner lamps + left & right warbases |
| HARD | Refer to « NORMAL » |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|-------------------------|----------------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | Left Captive Hole | F15 : 1A sloblo (*1) | QS1 | A-16570 |
| SOL 2 | A3J4-13 | Right Captive Hole | F15 : 1A sloblo (*1) | QS2 | A-16570 |
| SOL 5 | A3J4-6 | Center Drop Target Bank | F14 : 2A sloblo (*2) | QS5 | A-18318 |
| SOL 6 | A3J4-12 | Right Drop Target Bank | F14 : 2A sloblo (*2) | QS6 | A-18318 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F15 : 1A sloblo (*1) | QS9 | A-16570 |
| L12 | A3J3-25 | Right Launch Lane | F16 : 2A sloblo | QL12 (*P) | A-19300 |
| L13 | A3J3-24 | Ball Release | F17 : 1A sloblo | QL13 (*P) | A-16570 |
| L8 | A3J2-10 | Ramp | F18 : 2A sloblo | U21/U22-11 (*P) | A-17875 |

(*1) = the same fuse is shared by those 3 coils

(*2) = the same fuse is shared by those 2 coils

(*P) = drives a PNP 2N5875 transistor, remotely installed under the playfield

NAME Panthera
SERIES SYSTEM-80
GAME PROM NUMBER 652
DATE May 1980
NUMBER OR BALLS 1
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|----------------|---|--------------------------|--------------------|---|
| 0 | ALTERN EXBALL | Makes <i>extraball</i> lamp alternate when 10 points switches and bumpers are hit | 31 | LIBERAL CONSERV | Steadily lit lamp Alternates lamp (harder) |
| 1 | ALTERN SPECIAL | Makes <i>special</i> lamp alternate when 10 points switches and bumpers are hit | 32 | LIBERAL CONSERV | Steadily lit lamp Alternates lamp (harder) |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|---|
| EASY | Refer to « NORMAL » + Extraball if not scored |
| NORMAL | Color rollovers + targets (of the same color of the already scored rollovers) + Special if not scored |
| HARD | No parameter is remembered |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|-------------|-------------------|---------------------------------|----------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | #3 Target Bank Reset | 2A sloblo (*1) | QS1 | A-18318 |
| SOL 2 | A3J4-13 | #1 Target Bank Reset | 2A sloblo (*1) | QS2 | A-18318 |
| SOL 5 | A3J4-6 | #2 Target Bank Reset | 2A sloblo (*1) | QS5 | A-18318 |
| SOL 6 | A3J4-12 | Hole Kicker | 2A sloblo (*1) | QS6 | A-1496 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | 1A sloblo | QS9 | A-16570 |
| L12 | A3J3-25 | #1 Yellow drop target trip coil | none | QL12 | A-18642 |
| L13 | A3J3-24 | #1 Blue drop target trip coil | none | QL13 | A-18642 |
| L14 | A3J3-22 | #1 White drop target trip coil | none | QL14 | A-18642 |
| L15 | A3J3-23 | #1 Green drop target trip coil | none | QL15 | A-18642 |
| L16 | A3J3-13 | #2 Yellow drop target trip coil | none | QL16 | A-18642 |
| L17 | A3J3-14 | #2 Blue drop target trip coil | none | QL17 | A-18642 |
| L18 | A3J3-16 | #2 White drop target trip coil | none | QL18 | A-18642 |
| L19 | A3J3-15 | #2 Green drop target trip coil | none | QL19 | A-18642 |
| L20 | A3J3-21 | #3 Yellow drop target trip coil | none | QL20 | A-18642 |
| L21 | A3J3-20 | #3 Blue drop target trip coil | none | QL21 | A-18642 |
| L22 | A3J3-18 | #3 White drop target trip coil | none | QL22 | A-18642 |
| L23 | A3J3-19 | #3 Green drop target trip coil | none | QL23 | A-18642 |

(*1) = the same fuse is shared by those 4 coils

NAME Pink Panther
SERIES SYSTEM-80
GAME PROM NUMBER 664
DATE March 1981
NUMBER OR BALLS 3
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|--------------|--|--------------------------|----------------------------|---|
| 0 | TIME SPECIAL | Time during which <i>special</i> (black drop targets bank) remains lit in multiball mode | 31 | 20 SEC 25 SEC | 20 seconds 25 seconds |
| 1 | MAX DIAMOND | Maximum number of cumulated diamonds in multiball mode | 32 | 40DIAM 50DIAM 99DIAM | 40 diamonds 50 diamonds 99 diamonds |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|---|
| EASY | Refer to « NORMAL » + Extraball if not scored + P-I-N-K rollovers |
| NORMAL | Capture status of both left and right capture holes |
| HARD | Refer to « NORMAL » |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|---------------------------------|----------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | Lower Right Hole Kicker | 1A sloblo (*1) | QS1 | A-16570 |
| SOL 2 | A3J4-13 | Center Drop Target Bank (White) | 1A sloblo (*1) | QS2 | A-18102 |
| SOL 5 | A3J4-6 | Left Drop Target Bank (Black) | 2A sloblo | QS5 | A-18318 |
| SOL 6 | A3J4-12 | Trough Switch (Ball Release) | 1A sloblo | QS6 | A-16570 |
| SOL 8 | A3J5-8 | Knocker | non | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | 1A sloblo (*1) | QS9 | A-16570 |
| L8 | A3J2-10 | Left Captive Hole | 1A sloblo (*1) | U21/U22-11 (*P) | A-16570 |
| L9 | A3J2-9 | Right Captive Hole | 1A sloblo | U21/U22-12 (*P) | A-5195 |

(*1) = the same fuse is shared by those 4 coils

(*P) = drives a PNP 2N5875 transistor, remotely installed under the playfield

NAME Q*Bert's Quest
SERIES SYSTEM-80A
GAME PROM NUMBER 677
DATE March 1983
NUMBER OR BALLS 1
SOUND BOARD Speech
PI-FX COMPATIBLE? No

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|----------------|---|--------------------------|--------------------|--|
| 0 | ATTRAC + SND | Turns off sound and lights animation over « Coily » at regular periods of time in <i>game over</i> mode | 7 | DISABLE ENABLE | Animation is turned off Animation is turned on |
| 1 | FIG-8 VILLAIN | Controls the destruction of the currently lit <i>villain</i> when the ball makes a grand « 8 » loop | 8 | ANY POS 1ST POS | Destruction no matter the <i>villain</i> position Destruction only when <i>villain</i> on top 1 st position (harder) |
| 2 | PYRAMI SPECIAL | Number of pyramids to complete until <i>special</i> is lit | 31 | 5 6 7 8 | 5 pyramids 6 pyramids 7 pyramids 8 pyramids |
| 3 | TRIPLE ATTACK | New special attack of all 3 <i>villains</i> together, after a certain number of hits on <i>villains</i> | new | DISABLE ENABLE | Disabled Enabled |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|--|
| EASY | Refer to « NORMAL » |
| NORMAL | Lit cubes + lit pyramids + villains attack positions + Special if not scored |
| HARD | Refer to « NORMAL » |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|-------------|-------------------|--------------------|----------------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | Left 2 Bank Reset | F13 : 1A sloblo (*1) | QS1 | A-18102 |
| SOL 2 | A3J4-13 | Right Kicker | F12 : 2A sloblo (*2) | QS2 | A-1496 |
| SOL 5 | A3J4-6 | Left Kicker | F12 : 2A sloblo (*2) | QS5 | A-1496 |
| SOL 6 | A3J4-12 | Right 2 Bank Reset | F13 : 1A sloblo (*1) | QS6 | A-18102 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F13 : 1A sloblo (*1) | QS9 | A-5195 |

(*1) = the same fuse is shared by those 3 coils
 (*2) = the same fuse is shared by those 2 coils

NAME Rack'Em Up
SERIES SYSTEM-80A
GAME PROM NUMBER 685
DATE November 1983
NUMBER OR BALLS 1
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|------------|--|--------------------------|-------------------|---|
| 0 | BACKGD SND | Turns off background melody: the game plays silently between scored points | 31 | DISABLE ENABLE | No background melody Regular background melody |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|--|
| EASY | Refer to « NORMAL » + right flipper button unlimitedly cycles lamps in front of targets and rollovers |
| NORMAL | Remember center lamps, lamps in front of targets and rollovers, and special if not scored during previous ball |
| HARD | Refer to « NORMAL » |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|-------------|-------------------|-----------------------------|----------------|-----------------|-------------------------|
| SOL 2 | A3J4-13 | Shooter | 2A sloblo (*1) | QS2 | A-5194 |
| SOL 5 | A3J4-6 | 3-bank reset (bottom right) | 1A sloblo (*2) | QS5 | A-18102 |
| SOL 6 | A3J4-12 | 4-bank reset (top left) | 2A sloblo (*1) | QS6 | A-18318 |
| SOL 8 | A3J5-8 | Knocker | <i>none</i> | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | 1A sloblo (*2) | QS9 | A-5195 |

(*1) = the same fuse is shared by those 2 coils

(*2) = the same fuse is shared by those 2 coils

NAME Ready Aim Fire!
SERIES SYSTEM-80A
GAME PROM NUMBER 686
DATE November 1983
NUMBER OR BALLS 1
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|------------|--|--------------------------|-------------------|---|
| 0 | BACKGD SND | Turns off background melody: the game plays silently between scored points | 31 | DISABLE ENABLE | No background melody Regular background melody |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|--|
| EASY | Top rollover bonus lamp is remembered |
| NORMAL | Top rollover bonus lamp is remembered |
| HARD | Top rollover bonus lamp is not remembered (= reset to 5,000 pts) |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|----------|-----------------|-----------------|-------------------------|
| SOL 8 | A3J5-8 | Knocker | <i>none</i> | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F15 : 1A sloblo | QS9 | A-5195 |

NAME Royal Flush Deluxe

SERIES SYSTEM-80A

GAME PROM NUMBER 681

DATE June 1983

NUMBER OR BALLS 1

SOUND BOARD Speech but not equipped with the speech processor SC01

PI-FX COMPATIBLE? No

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|--------------|--|--------------------------|-------------------|---|
| 0 | BACKGD SND | Turns off background melody: the game plays silently between scored points | new | DISABLE ENABLE | No background melody Regular background melody |
| 1 | ROYAL S-MODE | New 10,000 points bonus on center <i>DIP</i> target and <i>bumper</i> for a limited amount of time Starts with black « K » and black « J » are the only 2 kicked down targets of the bank | new | DISABLE ENABLE | Disabled Enabled |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|--|
| EASY | Bottom right return gate |
| NORMAL | No parameter is remembered |
| HARD | No parameter is remembered |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|-----------------------|----------------------|-----------------|-------------------------|
| SOL 2 | A3J4-13 | Target Bank Reset (*) | F12 : 2A sloblo (*1) | QS2 | A-18102 |
| SOL 5 | A3J4-6 | Hole | F11 : 1A sloblo (*2) | QS5 | A-5195 |
| SOL 6 | A3J4-12 | Target Bank Reset (*) | F12 : 2A sloblo (*1) | QS6 | A-18102 |
| SOL 8 | A3J5-8 | Knocker | <i>non</i> | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F11 : 1A sloblo (*2) | QS9 | A-5195 |
| L12 | A3J3-25 | Gate | <i>non</i> | QL12 | A-20558 |

(*) driven at the same time by the CPU

(*1) = the same fuse is shared by those 2 coils

(*2) = the same fuse is shared by those 2 coils

NAME Spider-Man
SERIES SYSTEM-80
GAME PROM NUMBER 653
DATE January 1980
NUMBER OR BALLS 1
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

No specific setting

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|---|
| EASY | Refer to « NORMAL » + spinner lamp |
| NORMAL | 1-2-3 holes + green multiplier lamps before right targets |
| HARD | Green multiplier lamps before right targets |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|-------------|-------------------|--------------------------------|----------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | #2 Hole Kicker | 1A sloblo (*1) | QS1 | A-16570 |
| SOL 2 | A3J4-13 | #1 & #3 Hole Kickers (2 coils) | 1A sloblo (*1) | QS2 | A-16570 |
| SOL 5 | A3J4-6 | Left target bank reset | 1A sloblo (*1) | QS5 | A-18102 |
| SOL 6 | A3J4-12 | Right target bank reset | 2A sloblo | QS6 | A-17891 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | 1A sloblo (*1) | QS9 | A-16570 |

(*1) = the same fuse is shared by those 5 coils

NAME Spirit
SERIES SYSTEM-80A
GAME PROM NUMBER 673
DATE November 1982
NUMBER OR BALLS 3
SOUND BOARD Speech but not equipped with the speech processor SC01
PI-FX COMPATIBLE? No

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|-----------------|---|--------------------------|------------------------|--|
| 0 | FAST MULTIBALL | Ejects the captured balls much faster when the multiball sequence starts | new | DISABLE ENABLE | Green lamp lights just once Cumulates green lamp scorings |
| 1 | HOMAGE STEVE | During the attract mode, displays a scrolling message about the Spirit-A-Go-Go alignment held at Bourgogne Game Show expo in september 2017, in homage to our friend Steve Charland (1956-2017) | new | DISABLE ENABLE | No message Homage message to Steve |
| 2 | RELEASE CAPTURE | If one or several balls have been captured and the ball in play is lost, one of the captured balls is immediately released, allowing the current player to continue to play : once per ball in play, or as long as some balls remain captured. Warning : choosing the last setting may lead to very long plays, as they continue while captured balls last.. | new | NO ONCE INFINITE | Normal game play Captured ball released once No limit on captured balls releases |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|---|
| EASY | Refer to « NORMAL » + 'STARGATE' ramp remains open for 30 hits (instead of 15) + pop bumper remains flashing for 30 hits (instead of 15) |
| NORMAL | Remembers « S-P-I-R-I-T » letters |
| HARD | Refer to « NORMAL » |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|------------------------|----------------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | 3 Bank | F10 : 1A sloblo (*1) | QS1 | A-18102 |
| SOL 2 | A3J4-13 | Left Bottom Hole | F15 : 2A sloblo (*2) | QS2 | A-5194 |
| SOL 5 | A3J4-6 | 3 Bank Upper Playfield | F11 : 1A sloblo (*3) | QS5 | A-18102 |
| SOL 6 | A3J4-12 | Center Top Hole | F15 : 2A sloblo (*2) | QS6 | A-5194 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F10 : 1A sloblo (*1) | QS9 | A-16570 |
| L12 | A3J3-25 | Ball Release | F13 : 1A sloblo | QL12 (*P) | A-16570 |
| L13 | A3J3-24 | STARGATE Ramp | F14 : 2A sloblo | QL13 (*P) | A-17875 |
| L14 | A3J3-22 | Left Top Hole | F11 : 1A sloblo (*3) | QL14 (*P) | A-16570 |
| L15 | A3J3-23 | Right Bottom Hole | F12 : 1A sloblo | QL15 (*P) | A-16570 |

Main playfield
 Upper playfield

(*1) = the same fuse is shared by those 2 coils
 (*2) = the same fuse is shared by those 2 coils
 (*3) = the same fuse is shared by those 2 coils
 (*P) = drives a PNP 2N5875 transistor, remotely installed under the playfield

NAME Striker
SERIES SYSTEM-80A
GAME PROM NUMBER 675
DATE January 1983
NUMBER OR BALLS 2
SOUND BOARD Speech, 3 national anthems versions :
 American, French, German
PI-FX COMPATIBLE? No

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|---------------|--|--------------------------|-------------------|--|
| 0 | BEAT HIGOALS | Award when scored goals record is broken | 31 | NOTHING 1 PLAY | No award 1 replay |
| 1 | MAX GOALSCORE | Max bonus value per scored goal, displayed by the 5,000 10,000 and 15,000 lamps between the center r In 100 K mode, the 3 lamps flash together to indicate 100,000 bonus points | new | 15 K 100 K | From 5,000 up to 15,000 points From 5,000 to 30,000 then 100,000 points |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|---|
| EASY | Refer to « NORMAL » |
| NORMAL | Defense/offense sides + top lit goal rollovers + number of scored goals |
| HARD | Defense/offense sides + number of scored goals |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|---------------|----------------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | Hole | F12 : 1A sloblo (*1) | QS1 | A-5195 |
| SOL 2 | A3J4-13 | Center 4 Bank | F11 : 2A sloblo (*2) | QS2 | A-18318 |
| SOL 5 | A3J4-6 | Left 5 Bank | F11 : 2A sloblo (*2) | QS5 | A-17891 |
| SOL 6 | A3J4-12 | Right 5 Bank | F11 : 2A sloblo (*2) | QS6 | A-17891 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F12 : 1A sloblo (*1) | QS9 | A-16570 |
| L12 | A3J3-25 | Ball Release | F10 : 1A sloblo | QL12 (*P) | A-16570 |

(*1) = the same fuse is shared by those 2 coils

(*2) = the same fuse is shared by those 3 coils

(*P) = drives a PNP 2N5879 transistor, remotely installed under the playfield

NAME Super Orbit
SERIES SYSTEM-80A
GAME PROM NUMBER 680
DATE May 1983
NUMBER OR BALLS 1
SOUND BOARD Speech but not equipped with the speech processor SC01
PI-FX COMPATIBLE? No

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|---------------|---|--------------------------|------------------------------|---|
| 0 | BACKGD SND | Turns off background sound: the game plays silently between scored points | new | DISABLE ENABLE | No background sound Regular background sound |
| 1 | FLIPPE SOUND | Turns off flippers sound when energized | new | DISABLE ENABLE | No flippers sound Regular flippers sound |
| 2 | ORBIT SPECIAL | Position of « orbit » lamps at which <i>special</i> is lit And number of « orbit » positions advanced upon each hit on targets and rollovers <i>Note: refer to original game manual for complete details about each setting</i> | 31 | LIBERAL MEDIUM CONSERV | Liberal (easiest) Average level Conservative (hardest) |
| 3 | JACKPT MODE | New <i>varitarget</i> jackpot mode, enabled when <i>special</i> is not lit | new | DISABLE BALL PLAY | Disabled Jackpot enabled, value is reset with every new ball Jackpot enabled, value is cumulated ball after ball (per player) |
| 4 | VARITG DELAY | Delay until <i>varitarget</i> is reset to resting position (bottom) to avoid throwing the ball back in play | new | DISABLE ENABLE | No delay, immedaite return to resting position Delay (½ second) |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|---|
| EASY | Bottom right return gate ; top right rollunder no longer resets it |
| NORMAL | No parameter is remembered |
| HARD | No parameter is remembered + lit bumpers give 3,000 instead of 10,000 |
| HARDEST | Refer to « HARD » |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|-------------------|-----------------|-----------------|-------------------------|
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F13 : 1A sloblo | QS9 | A-5195 |
| L12 | A3J3-25 | Gate | none | QL12 | A-20558 |
| L13 | A3J3-24 | Vari-Target Reset | none | QL13 | A-17564 |

NAME The Games
SERIES SYSTEM-80A
GAME PROM NUMBER 691
DATE August 1984
NUMBER OR BALLS 1
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|---------------|---|--------------------------|--------------------|--|
| 0 | BACKGD SND | Turns off background melody: the game plays silently between scored points | 31 | DISABLE ENABLE | No background melody Regular background melody |
| 1 | MEDAL SETTING | Turn on the extraball targets depending on the number of balls per play (3 or 5) and this setting <i>Refer to game's manual for all details about required medals number (for example: 3 balls and LIBERAL = 2 medals)</i> | 32 | LIBERAL CONSERV | Extraball easier to earn Extraball more difficult to earn |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|---|
| EASY | Refer to « NORMAL » |
| NORMAL | Remember bonus value and restore it upon next ball in play if all 5 medals were earned on the previous ball |
| HARD | No parameter is remembered |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|-------------------|----------------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | Hole | F13 : 1A s1oblo (*1) | QS1 | A-16570 |
| SOL 8 | A3J5-8 | Knocker | no | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | F13 : 1A s1oblo (*1) | QS9 | A-5195 |
| L12 | A3J3-25 | Vari-Target Reset | no | QL13 | A-17564 |

(*1) = the same fuse is shared by those 2 coils

NAME Time Line
SERIES SYSTEM-80
GAME PROM NUMBER 659
DATE November 1980
NUMBER OR BALLS 1
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|--------------|--|--------------------------|-------------------|---|
| 0 | 1-MILL AWARD | Additional award each time 1-million points are reached <i>Note: same as general setting 19</i> | 32 | DISABLE ENABLE | No award Award depends on general setting 7 |
| 1 | BACKGD SND | Turns off background sound: the game plays silently between scored points | new | DISABLE ENABLE | No background sound Regular background sound |
| 2 | GONG AWARD | Turns off gong that rings upon each awarded play (scoring or <i>special</i>) | new | DISABLE ENABLE | Gong is turned off Gong is turned on |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|--|
| EASY | Refer to « NORMAL » + 5,000 lamps before yellow targets + return gate |
| NORMAL | 5,000 lamps before red targets + 1-2-3 targets + Extraball if not scored + multiplier level + X/O matrix |
| HARD | Multiplier level alone (X/O matrix emptied) |
| HARDEST | No parameter is remembered |

Coils driven by the PI-80, and associated fuses

| Coil / Lamp Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|--------------------|-------------------|-------------------------------|----------------|-----------------|-------------------------|
| SOL 1 | A3J4-7 | Yellow Drop Target Bank Reset | 2A sloblo (*1) | QS1 | A-18318 |
| SOL 2 | A3J4-13 | Red Drop Target Bank Reset | 2A sloblo (*1) | QS2 | A-17891 |
| SOL 5 | A3J4-6 | Ball Kicker | 2A sloblo (*1) | QS5 | A-5194 |
| SOL 6 | A3J4-12 | Black Drop Target Bank Reset | 2A sloblo (*1) | QS6 | A-17891 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | 1A sloblo | QS9 | A-16570 |
| L34 | A3J3-K | Gong | 2A sloblo | U17/U18-17 (*P) | A-5194 |
| L45 | A3J3-F | Gate Open Relay | none | QL45 | A-20558 |
| L47 | A3J3-M | Auxiliary Relay | none | QL47 | A-16890 |

(*1) = the same fuse is shared by those 4 coils

(*P) = drives a PNP 2N5875 transistor, remotely installed under the playfield

NAME Touchdown
SERIES SYSTEM-80A
GAME PROM NUMBER 688
DATE February 1985
NUMBER OR BALLS 1
SOUND BOARD Non speech
PI-FX COMPATIBLE? Yes

SPECIFIC SETTINGS TO SELECTED GAME

| Setting number (CREDIT) | Setting | Description | Original DIPSW (PLAYER2) | Values (PLAYER1) | Features |
|-------------------------|------------|--|--------------------------|-------------------|---|
| 0 | BACKGD SND | Turns off background melody: the game plays silently between scored points | 31 | DISABLE ENABLE | No background melody Regular background melody |

Playfield parameters remembered from ball to ball for each player

| Player Level | Stored game parameters matching that level |
|--------------|--|
| EASY | Remember yards and touchdown lamps, and re-lit flashing holes if not scored or if PASS spinner not scored |
| NORMAL | Remember yards and touchdown lamps |
| HARD | No parameter is remembered |
| HARDEST | No parameter is remembered, and defense stepback occurs every 3 rd kicking targets hit (instead of 5) |

Coils driven by the PI-80, and associated fuses

| Coil Output | Connector and Pin | Function | Dedicated Fuse | Driven by PI-80 | Gottlieb coil reference |
|-------------|-------------------|------------|----------------|-----------------|-------------------------|
| SOL 5 | A3J4-6 | Left hole | 1A sloblo (*1) | QS5 | A-16570 |
| SOL 6 | A3J4-12 | Right hole | 1A sloblo (*1) | QS6 | A-16570 |
| SOL 8 | A3J5-8 | Knocker | none | QS8 | A-5195 |
| SOL 9 | A3J4-8 | Outhole | 1A sloblo (*1) | QS9 | A-5195 |

(*1) = the same fuse is shared by those 3 coils